same formation has been traced together with lithodomous perforations by Dr. Carlo Gemmellaro and Baron v. Waltershausen along the sea-shore as far north as Taormina, beyond the volcanic region of Etna. From these and other data enlarged upon in the memoir, Sir C. Lyell concludes, first, that a very high antiquity must be assigned to the successive eruptions of Etna, each phase of its volcanic energy, as well as the excavation of the Val del Bove, having occupied a lapse of ages compared to which the historical period is brief and insignificant; and secondly, that the growth of the whole mountain must nevertheless be referred, geologically, to the more modern part of the latest Tertiary epoch.

II. "On some Thermo-dynamic Properties of Solids." By J. P. Joule, LL.D., F.R.S. &c. Received April 22, 1858.

(Abstract.)

A *résumé* of the greater part of this paper has already appeared in the 'Proceedings' for January 29, June 18, and November 26, 1857. The author has since examined the expansion by heat of wood cut across the grain, which, as well as that cut in the direction of the fibre, he finds to be increased by tension and decreased by moisture. When a sufficient quantity of water has been absorbed the expansibility by heat ceases, and wood is *contracted* in each direction by rise of temperature. Nevertheless, when wood, saturated with water, is weighed in water of different temperatures, the result shows cubical expansion of the substance of the wood by heat. The inference drawn by the author from these facts is, that the contraction of the dimensions of wet wood is owing to the action of heat in diminishing the force of capillary attraction, and that thus the walls of the minute cells and tubes of the woody structure are partially relieved from a force which thrusts them asunder, a small quantity of water exuding at the same time. In the case of wet wood which contracts by heat, he finds, in accordance with Professor Thomson's formula, that a rise of temperature is produced by the application of tension. In conformity with the deductions of the same philosopher, the author has also been able to detect experimentally the minute quantity of heat absorbed, in bending or twisting an elastic spring, arising from the diminution of the elastic force of metals with a rise of temperature.